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Psychiatric Comorbidity in Post-traumatic Stress Disorder Among People Seeking Treatment After the Marmara Earthquake

ABSTRACT: *Objective: The purpose of this study was to determine the current comorbidity of post-traumatic stress disorder among treatment-seeking people one year after the 1999 Marmara earthquake.*

Method: Subjects included in the study were between eighteen and sixty-five years of age, were seeking psychiatric treatment, were living in a prefabricated housing site. A face-to-face psychiatric interview lasting thirty to forty-five minutes was conducted with persons willing to participate in the study. The Turkish version of the Structured Clinical Interview for DSM-IV, Clinical Version

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(SCID-I) was used to assess the current psychiatric condition and a form consisting of sociodemographic information and pre- and post-inventory of the disaster was filled out for each subject.

Results: In a sample of 100 individuals the prevalence of any psychiatric morbidity was 74 percent. The most prevalent diagnoses were post-traumatic stress disorder, major depressive disorder, and not-otherwise-specified anxiety disorder (40 percent, 32 percent, and 19 percent, respectively). Current comorbidity with any psychiatric disorder among patients with post-traumatic stress disorder was 87.5 percent. The most prevalent comorbid diagnosis was major depressive disorder (74.3 percent). The predictors of comorbidity are being married and being in a poor economic situation.

Conclusion: A high rate of comorbidity is found among the survivors of a severe earthquake. The most prevalent is major depressive disorder. Greater psychological morbidity after a natural disaster suggests that further investigations and studies should be conducted in order to assist these patients.

The effects of natural disasters are similar to those seen after other traumatic experiences such as rape, molestation, kidnapping, accidents, crime, terrorist acts, combat, exposure to torture, being in concentration camps, and being prisoners of war [2, 12, 18]. All kinds of traumatic events increase the risk for post-traumatic stress disorder (PTSD) and other disorders [17]. In studies from different countries, psychiatric morbidity has been reported in 59 percent of victims of an earthquake in rural India [19], 55 percent of victims of volcanic eruption in Columbia [14], and 40 percent of people presenting at primary health care clinics following an earthquake in Ecuador [15].

It has been found that PTSD is the most prevalent type of psychiatric morbidity after disasters: 59 percent of tornado victims [16], 67 percent among survivors of an Armenian earthquake [11], 43 percent after a Marmara earthquake [1], 37 percent after an earthquake in Taiwan [13], and 23 percent after an earthquake in

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India [19]. Major depressive disorder (MDD) is the second most prevalent disorder among survivors of earthquakes [1, 11, 13]. Comorbid psychiatric disorders in those with PTSD can develop at a high rate; lifetime prevalence was reported to be approximately 84 percent [12] and current prevalence was reported to be 44 percent [18] and 38 percent [21]. Post-traumatic stress disorder is particularly likely to be comorbid with depressive disorders, other anxiety disorders, somatization, substance abuse, and dissociative disorders [2, 4, 12].

The purpose of this study was to determine the current comorbidity of post-traumatic stress disorder and the predictors of this comorbidity in individuals living in prefabricated housing and seeking solutions for their psychosocial problems one year after the 1999 Marmara earthquake in Turkey.

Method

The survey was conducted between July 31 and September 30, 2000, in a prefabricated housing site. Individuals who experienced the Marmara earthquake on August 17, 1999, were living at this site because their houses had been damaged or totally destroyed. The total population living in the prefabricated housing was 4,329 (700 adult men, 718 adult women, 2,911 children). Individuals were informed about psychosocial help through an announcement made by the manager of the prefabricated site. Among those coming to the psychosocial help center, individuals included in the study were those willing to participate, who were between eighteen and sixty-five years of age. A face-to-face psychiatric interview lasting thirty to forty-five minutes was conducted with these individuals. The Turkish version [9] of the Structured Clinical Interview for DSM-IV, Clinical Version (SCID-I) [10] was used to assess the current psychiatric condition, and a form consisting of sociodemographic information and pre- and post-inventory of the disaster was filled out for each subject. Statistical analysis was conducted using the SPSS 10.0 statistical software application and Pearson chi-square test.

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Results

The psychosocial help center served 206 persons, of which 100 individuals met inclusion criteria and participated in the study. Mean age of the participants was 37.2 years, 77 percent were women, and 23 percent were men. Out of 100 participants, 74 had some psychiatric diagnosis, either PTSD or others. The most prevalent disorders were PTSD (40 percent), MDD (32 percent), anxiety disorder not otherwise specified (NOS) (19 percent), generalized anxiety disorder (6 percent), simple phobia (4 percent), prolonged mourning reaction (3 percent), obsessive compulsive disorder (2 percent), social phobia (1 percent), and somatization disorder (1 percent). Comorbidity rate with PTSD was 87.5 percent for all diagnoses. Only 5 persons out of 40 with PTSD did not receive a second psychiatric diagnosis. Among individuals with comorbid disorders incidence of MDD was 74.3 percent, GAD 8.6 percent, simple pobia 2.9 percent, prolonged mourning reaction 2.9 percent, and somatization disorder 2.9 percent. With respect to having diagnoses of PTSD and comorbidity, there were no statistical differences between men and women, those with lower and higher education, and those with family members who were seriously or fatally injured. The rate of current comorbid psychiatric disorder with PTSD was higher in those who are married and in those who have poor economic conditions than in those who are unmarried and not poor ($p < 0.05$). The sociodemographic characteristics and diagnostic conditions of survivors are shown in Table 1.

Subthreshold PTSD or anxiety disorder NOS: Individuals who have at least six post-traumatic symptoms in different clusters but not met the severity criterion were diagnosed as anxiety disorder NOS, which means that this group was evaluated as subthreshold or subclinical PTSD (ST-PTSD). In the group of ST-PTSD ($n = 19$), more comorbid psychiatric disorder (57.9 percent) was found than in the non-PTSD group ($n = 41$) (9.8 percent) ($p = 0.001$). There were no statistically significant differences between the PTSD and ST-PTSD groups with regard to sociodemographic variables.

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Table 1

Sociodemographic Characteristics of Individuals with Post-traumatic Stress Disorder (PTSD) and Comorbid Disorders

Characteristics	PTSD, *n* (%)		Comorbidity, *n* (%)	
Gender				
Male (*n* = 23)	9	(39.1)	7	(30.4)
Female (*n* = 77)	31	(40.3)	28	(36.4)
Marital status*				
Married (*n* = 70)	33	(47.1)	29	(41.4)
Single / divorced (*n* = 30)	7	(23.3)	6	(20.0)
Education				
8 years (*n* = 62)	28	(45.2)	24	(38.7)
9 years (*n* = 38)	12	(31.6)	11	(28.9)
Economic situation*				
Poor (*n* = 31)	16	(51.6)	14	(45.2)
Moderate to good (*n* = 69)	24	(40.0)	21	(35.0)
Death in family				
Present (*n* = 25)	12	(48.0)	11	(44.0)
Not (*n* = 75)	28	(37.3)	24	(32.0)

*$p < 0.05$

Discussion

This study shows that the most common concurrent comorbid disorder with PTSD is MDD (74.3 percent). This finding is consistent with the results of other studies, for example, 76 percent [21], 75 percent [8], 50 percent [2], and 44 percent [18]. The high rate of comorbidity of MDD with PTSD can be explained based on the considerable symptom overlap between PTSD and depression (i.e., diminished interest, sleep disturbances, difficulty in concentration, despair or hopelessness, avoidance and withdrawal, and feelings of guilt). This situation may be the result of an epiphenomenon of the diagnostic criteria used for these disorders, on the one hand, or PTSD might be a marker of a more generalized susceptibility to depression [7], on the other hand. Depression in patients with PTSD

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may be (1) secondary to and a part of the PTSD; (2) independent of the PTSD and occurs concurrently by chance; (3) itself an outcome of the traumatic stressor. It appears that PTSD and depression are closely related, but the nature of this relationship is complex and variable and must be examined on a case-by-case basis [4]. Regardless of diagnostic differentiation, PTSD and depression may be independent or dependent to some extent, and the truth is both disorders are common sequelae of exposure to trauma.

All individuals who have been given a diagnosis of anxiety disorder NOS in our study were also experiencing post-traumatic reactions. Some studies [20, 24] suggest that there is a possible continuum of post-traumatic stress reactions and there may be little to distinguish between full and partial PTSD. The results of our study support this suggestion. Taken together, all clinical features seen in patients who have experienced trauma can be seen as complex somatic, cognitive, affective, and behavioral effects of psychological trauma [3, 22].

Although substance abuse disorder has been reported to be a higher comorbid situation with PTSD in other studies [12, 23] we did not find a significant number of cases in our study. This could be due to cultural factors or to the fact that our sample consisted of individuals who were diagnosed with PTSD for the first time. Substance abuse has been reported in association with prolonged episodes of PTSD [5].

Factors that influence comorbidity with PTSD are being married and being in a poor economic situation. Although a poor economic situation can be a causal factor in both PTSD and MDD [1, 17, 19], the strong influence of being married as a predictive factor for comorbidity with PTSD might reflect the characteristics of our sample. This finding needs to be replicated using large samples.

It is known that more than one-third of people with an index episode of PTSD fail to recover, even after many years, regardless of treatment status [12]. Furthermore, the presence of comorbid depression seems to predict chronicity of PTSD [4, 6]. The higher psychiatric morbidity and comorbidity even after one

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year following a natural disaster suggests that more investigations and studies be performed in order to help these patients from the outset. Early treatment interventions should target both PTSD and depressive disorder. Thus, both the chronicity of PTSD and the occurrence of comorbid conditions can be prevented.

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